

# Notice of Allowability

Application No.

10/604,329

Examiner

Charles G Freay

Applicant(s)

HAGGANDER ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the papers filed through September 3, 2003.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☒ The drawings filed on 11 July 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
  1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date 09032003
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

Charles G Freay  
Primary Examiner  
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### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

The application has been amended as follows:

On page 1 at the end of paragraph [0001] the heading "**BACKGROUND OF INVENTION**" has been deleted. The heading is redundant to the heading shown at the top of page 2.

### REASONS FOR ALLOWANCE

The following is an examiner's statement of reasons for allowance: the prior art neither discloses nor makes obvious a wall structure, or a method of making a wall structure, for a liquid cooled rocket engine having an outer curved sheet metal wall with cooling channels attached to it and a material of higher thermal conductivity than the wall structure is applied to the wall so that the material forms a substantially continuous contact surface against the sheet metal wall from the wall of one cooling channel to the wall of an adjacent cooling channel and that the material at least partly surrounds the walls of the cooling channels.

Prior art references such as Bales et al (USPN 5,375,325) disclose a wall having an outer steel with an inner copper or other diffusion bonded on layer. In Bales et al the layer is used as a bonding or layer in a HIP manufacturing process and does not partly

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surround the cooling channels. Prior art references to Dederra et al (USPN 3,690,103) and Huang (USPN 3,897,316) disclose curved outer walls and longitudinally attached cooling channels. In Dederra et al the outer wall is an electroplated layer which is reinforced by a steel strip. The cooling channels are attached and are partly surrounded by filling/sealing material which will be partially fused out during the manufacturing process. Huang (USPN 3,897,316) discloses a curved steel wall with welded cooling channels. It would not have been obvious to combine the teachings of Bales et al and Dederra et al since it would require replacing the electroplated material in the outer layer of Dederra et al with sheet metal and then using the inner brazed layer material of Bales et al in the Dederra et al reference as sealing material to be fused out. There is no motivation for making such changes to the Dederra et al reference. Additionally, there is no motivation for using the inner diffusion bonding material of Bales et al as a brazing material for the tubes of Huang et al. Additionally, in Huang the cooling channels and the wall and joined at their joints. So it does not form a continuous contact surface against the wall and partly surround the cooling channel.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles G Freay whose telephone number is 703-308-

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0639. The examiner can normally be reached on Monday through Friday 10:00 A.M. to 5:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine Yu can be reached on 703-308-2675. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Charles G Freay  
Primary Examiner  
Art Unit 3746

CGF  
April 5, 2004